PHYCOLOGIA

VOLUME 16
1977

PUBLISHED BY BLACKWELL SCIENTIFIC PUBLICATIONS
FOR THE INTERNATIONAL PHYCOLOGICAL SOCIETY

PHYCOLOGIA

Published quarterly by the International Phycological Society.

Editor

Kathleen M. Cole, Department of Botany, University of British Columbia, Vancouver, British Columbia, Canada V6T 1W5 (1975–1977; second term)

Board of Associate Editors

J. D. Dodge, Department of Botany, Birkbeck College, Malet St, London W.C.1, England (1975–1977; second term)

Robert F. Scagel, Department of Botany, University of British Columbia, Vancouver, British Columbia, Canada V6T 1W5 (1975–1977; second term)

Francis R. Trainor, Biological Sciences, University of Connecticut, Storrs, Connecticut 06268, U.S.A. (1975–1977; second term)

Board of Editorial Advisors

C. E. M. Bicudo, Instituto de Botanica, Caixa Postal 4005,São Paulo, Brasil

A. Cardinal, Département de Biologie, Université Laval, Québec 10e, Québec, Canada.

Y.-M. Chiang, Institute of Oceanography, National Taiwan University, P.O. Box 6013, Taipei, Taiwan, Republic of China.

P. Gayral, Laboratoire de Biologie Cellulaire et de Botanique (Algologie), Université de Caen, 39 Rue Desmoueux, 14000 Caen, France.

E. George, Culture Centre of Algae and Protozoa, 36 Storey's Way, Cambridge CB3 0DT, England.

T. Masaki, Botanical Laboratory, Faculty of Fisheries, Hokkaido University, Hakodate, Hokkaido 040, Japan.

A. Rieth, Zentralinstitut für Genetik und Kulturpflanzenforschung, DDR-4325, Gatersleben.

P. L. Walne, Botany Department, University of Tennessee, Knoxville, Tennessee 37916, U.S.A.

INTERNATIONAL PHYCOLOGICAL SOCIETY

Dedicated to the promotion of phycology and to the encouragement of international cooperation among phycologists and phycological institutes.

Officers for 1977

(with terms of membership in the Executive Council)

President: R. E. Norris, Friday Harbor Laboratories, University of Washington, Friday Harbor, Washington 98250, U.S.A. (1976–1978; first term)

Secretary: Sylvia Earle, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118, U.S.A. (1975–1977; first term)

Treasurer: A. R. A. Taylor, Department of Biology, University of New Brunswick, Fredericton, New Brunswick, Canada, E3B 5A3 (1977–1979; first term)

Other Members of the Executive Council

C. E. M. Bicudo, Instituto de Botanica, Caixa Postal 4005, São Paulo, Brazil (1977–1979; first term)

T. Christensen, Institut for Sporeplanter, Oster Farimagsgade 2 D, DK-1353 Copenhagen, Denmark (1975–1977; second term; President, 1972)

Kathleen M. Cole, Department of Botany, University of British Columbia, Vancouver, British Columbia, Canada V6T 1W5 (as Editor of *Phycologia*, 1975–1977; second term)

Sophie C. Ducker, Botany Department, University of Melbourne, Parkville, N.2, Victoria, Australia (1975–1977; second term)

M. Kurogi, Department of Botany, Faculty of Science, Hokkaido University, Sapporo 060, Japan (1976–1978; second term)

T. A. Norton, Department of Botany, The University, Glasgow W2, Scotland (1976–1978; first term)

G. F. Papenfuss, Department of Botany, University of California, Berkeley, California 94720, U.S.A. (1977–1979; first term)

G. R. South, Department of Biology, Memorial University of Newfoundland, St John's, Newfoundland, Canada A1C 5S7 (1977–1979; first term).

Contents

VOL. 16, NO. 1, MARCH 1977

D. Reid Wiseman. Observations of the reproductive morphology of the red algal genus *Ochtodes* J. Agardh (Rhizophyllidaceae, Gigartinales) . . . 1

Paola Mariani Colombo and Mario Orsenigo. Sea depth effects on the algal photosynthetic apparatus. II. An electron microscopic study of the photosynthetic apparatus of *Halimeda tuna* (Chlorophyta, Siphonales) at −0.5 m and −6.0 m sea depths 9

Sara Yacubson. *Staurastrum maraense*, una especie nueva de Desmidiaceae . 19

Joe M. King and C. H. Ward. Distribution of edaphic algae as related to land usage 23

Joan G. Stewart. Effects of lead on the growth of four species of red algae . 31

Iain E. P. Taylor and Amanda J. Wilkinson. The occurrence of gibberellins and gibberellin-like substances in algae 37

Gerald T. Kraft. The morphology of *Grateloupia intestinalis* from New Zealand, with some thoughts on generic criteria within the family Cryptonemiaceae (Rhodopyta) 43

Ronald W. Hoham and John E. Mullet. The life history and ecology of the snow alga *Chloromonas cryophila* sp. nov. (Chlorophyta, Volvocales) . . 53

Karen A. Steidinger and Enrique Balech. *Scrippsiella subsalsa* (Ostenfeld) comb. nov. (Dinophyceae) with a discussion on *Scrippsiella* 69

Richard E. Norris. Flagellate cells in the life-history of *Stichogloea* (Chrysophyceae) 75

Elizabeth Gordon-Mills. Two new species of marine algae from Stewart Island, New Zealand, *Medeiothamnion norrisii* and *Ptilothamnion rupicolum* (Ceramiaceae, Rhodophyta) 79

Beverley R. Green. The effects of natural and synthetic sea water media on the growth and reproduction of *Acetabularia* 87

Greta A. Fryxell. *Thalassiosira australis* Peragallo and *T. lentiginosa* (Janisch) G. Fryxell, comb. nov.: two antarctic diatoms (Bacillariophyceae) . . 95

Naval J. Antia, Brigitte R. Berland, Daniel J. Bonin and Serge Y. Maestrini. Effects of urea concentration in supporting growth of certain marine microplanktonic algae 105

Yocie Yoneshigue-Braga. *Pseudendoclonium marinum* (Reinke) Aleem et Schulz, a first reported occurrence for South America (Note) 113

Eliot M. Herman and Beatrice M. Sweeney. Scanning electron microscopic observations of the flagellar structure of *Gymnodinium splendens* (Pyrrophyta, Dinophyceae) (Note) 115

Book Review 119

Announcements 120

Addendum (Lewin) 120

VOL: 16. NO. 2, JUNE 1977

V. Brown, S. C. Ducker and K. S. Rowan. The effect of orthophosphate concentration on the growth of articulated coralline algae (Rhodophyta) . 125

Thomas J. Monahan. Effects of organic phosphate on the growth and morphology of *Scenedesmus obtusiusculus* (Chlorophyceae) 133

B. Galatis, Chr. Katsaros and K. Mitrakos. Fine structure of vegetative cells of *Sphacelaria tribuloides* Menegh. (Phaeophyceae, Sphacelariales) with special reference to some unusual proliferations of the plasmalemma . . 139

Robert Hooper and G. Robin South. Distribution and ecology of *Papenfussiella callitricha* (Rosenv.) Kylin (Phaeophyceae, Chordariaceae) 153

John P. van der Meer and Nancy L. Bird. Genetics of *Gracilaria* sp. (Rhodophyceae, Gigartinales). I. Mendelian inheritance of two spontaneous green variants 159

Lawrence C.-M. Chen. The sporophyte of *Ahnfeltia plicata* (Huds.) Fries (Rhodophyceae, Gigartinales) in culture 163

E. M. Gordon-Mills and E. L. McCandless. Carrageenans in the cell walls of *Chondrus crispus* Stack. (Rhodophyceae, Gigartinales) II. Birefringence . 169

S. Dipierro, C. Perrone and G. P. Felicini. *In vivo* nitrate reductase assay in *Petroglossum nicaeense* (Duby) Schotter (Rhodophyta, Phyllophoraceae) . 179

I. M. Johnstone. *Draparnaldiopsis:* A filamentous green alga (Chlorophyta, Chaetophoraceae) requiring vitamin B_{12} 183

Peter Edwards. An analysis of the pattern and rate of cell division, and morphogenesis of sporelings of *Callithamnion hookeri* (Dillw.) S. F. Gray (Rhodophyta, Ceramiales) 189

William H. Magruder. The life history of the red alga *Ahnfeltia concinna* (Rhodophyta, Gigartinales) 197

Elsie Conway and Kathleen Cole. Studies in the Bangiaceae: structure and reproduction of the conchocelis of *Porphyra* and *Bangia* in culture (Bangiales, Rhodophyceae) 205

Ralph A. Lewin. *Prochloron*, type genus of the Prochlorophyta (Note) . . 217

David N. Young. A note on the absence of flagellar structures in spermatia of *Bonnemaisonia* (Note) 219

Obituary 223

Announcements 225

VOL. 16, NO. 3, SEPTEMBER 1977

Javier Coll and E. C. de Oliveira Filho. The nuclear state of 'reproductive' cells of *Porphyra leucosticta* Thuret *in* Le Jolis (Rhodophyta, Bangiales) . 227

Célia Romano Leite and Carlos E. M. Bicudo. *Tetranephris*, a new genus of Chlorococcales (Chlorophyceae) from southern Brazil 231

Luis Oliveira and Thana Bisalputra. Ultrastructural and cytochemical studies on the nature and origin of the cytoplasmic inclusions of aging cells of *Ectocarpus* (Phaeophyta, Ectocarpales) 235

In Kyu Lee. *Halosaccion minjaii* spec. nov. (Rhodophyta, Rhodymeniales) from the Aleutian Islands 245

T. F. H. Allen. Scale in microscopic algal ecology: a neglected dimension . 253

Mitchell D. Hoyle. *Gracilaria epihippisora* sp. nov. (Rhodophyta, Gigartinales, Gracilariaceae): a new species from the island of Hawaii 259

Robert G. Sheath, Johan A. Hellebust and Takashi Sawa. Changes in plastid structure, pigmentation and photosynthesis of the conchocelis stage of *Porphyra leucosticta* (Rhodophyta, Bangiophyceae) in response to low light and darkness 265

Richard M. Crawford. The taxonomy and classification of the diatom genus *Melosira* C. Ag. II. *M. monoliformis* (Müll.) C. Ag. 277

T. Edelstein and J. McLachlan. On *Chloreocolax odonthaliae* Levring (Cryptonemiales, Rhodophyceae) 287

Patricia A. Archibald. Physiological characteristics of *Trebouxia* (Chlorophyceae, Chlorococcales) and *Pseudotrebouxia* (Chlorophyceae, Chlorosarcinales) 295

James Fiore. Life history and taxonomy of *Stictyosiphon subsimplex* Holden (Phaeophyta, Dictyosiphonales) and *Farlowiella onusta* (Kützing) Kornmann *in* Kuckuck (Phaeophyta, Ectocarpales) 301

Maureen E. Callow and L. V. Evans. Studies on the ship-fouling alga *Enteromorpha* (Chlorophyceae, Ulvales). IV. Polysaccharide and nucleoside diphosphatase localization 313

Grethe Rytter Hasle. Morphology and taxonmomy of *Actinocyclus normanii* f. *subsalsa* (Bacillariophyceae) 321

J. McLachlan. Effects of nutrient on growth and development of embryos of *Fucus edentatus* Pyl. (Phaeophyceae, Fucales) 329

Michel Penot et Marthe Penot. Quelques aspects originaux des transports à longue distance dans le thalle de *Ascophyllum nodosum* (L.) Le Jolis (Phaeophyceae, Fucales) 339

R. P. Darveau and D. L. Lynch. The antibiotic activity of prodigiosins against certain blue-green and green algae (Note) 349

Gunnar Nygaard. On making fluid mounts of plankton algae (Note) . . 351

Announcements 353

VOL. 16, NO. 4, DECEMBER 1977

E. F. Stoermer and L. Sicko-Goad. A new distribution record for *Hymenomonas roseola* Stein (Prymnesiophyceae, Coccolithophoraceae) and *Spiniferomonas trioralis* Takahashi (Chryosophyceae, Synuraceae) in the Laurentian Great Lakes 355

Valerie Meunier and Elijah Swift. Observations on thecate swarmers of *Pyrocystis* species in laboratory culture: *Pyrocystis fusiformis* Wyville Thomson *ex* Murray and *Pyrocystis pseudonoctiluca* Wyville Thomson *ex* Murray (Dinococcales) 359

John P. van der Meer. Genetics of *Gracilaria* sp. (Rhodophyceae, Gigartinales). II. The life history and genetic implications of cytokinetic failure during tetraspore formation 367

Thomas F. Mumford, Jr and Kathleen Cole. Chromosome numbers of fifteen species in the genus *Porphyra* (Bangiales, Rhodophyta) from the west coast of North America 373

Phillip A. Lebednik. Postfertilization development in *Clathromorphum, Melobesia* and *Mesophyllum* with comments on the evolution of the Corallinaceae and the Cryptonemiales (Rhodophyta) 379

D. M. John. A new West African species of *Trichosolen* (Chlorophyceae) . 407

Ruth Nielsen and Poul Møller Pedersen. Separation of *Syncoryne reinkei* nov. gen., nov. sp. from *Pringsheimiella scutata* (Chlorophyceae, Chaetophoraceae) . 411

Donald F. Kapraun. Asexual propagules in the life history of *Polysiphonia ferulacea* (Rhodophyta, Ceramiales) 417

I. Manton. *Dolichomastix* (Prasinophyceae) from arctic Canada, Alaska and South Africa: a new genus of flagellates with scaly flagella . . . 427

B. N. Pande and A. B. Gupta. Antibiotic properties in *Chlorococcum humicolum* (Naeg) Rabenh. (Chlorophyceae) 439

Elise M. Wollaston. Morphology and life history of *Dasyphila preissii* Sonder with notes on the taxonomic position of *Muellerena wattsii* (Harvey) Schmitz (Rhodophyta, Ceramiaceae) 443

Lisbeth Fries. Growth regulating effects of phenylacetic acid and *p*-hydroxyphenylacetic acid on *Fucus spiralis* L. (Phaeophyceae, Fucales) in axenic culture 451

Michael W. Hawkes. A field, culture and cytological study of *Porphyra gardneri* (Smith & Hollenberg) comb. nov. (=*Porphyrella gardneri* Smith & Hollenberg), (Bangiales, Rhodophyta) 457

Announcements 470

Book Review 471

Author Index for Volume 16 475